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THE VETERINARY RECORD

The Journal of the British Veterinary Association

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The Export of Live Cattle to Europe

FOR a number of years the British Veterinary Association has pressed upon the authorities the logic of inviting veterinary surgeons to provide for the meat inspection service that specialised skill and knowledge possessed only by the profession. So far the suggestion has fallen upon deaf ears. Even the evidence provided by a special enquiry into the meat inspection and slaughter-house services of other western nations, which showed England as almost alone in entrusting this work to other than veterinary hands, failed in stimulating long overdue reform. Last week, in dramatic fashion, the subject was raised again, when a Committee, appointed by the appropriate Ministers of State, declared itself "shocked to learn that contracts for the supply of meat for the United States Forces in Europe could not be arranged from this country direct because our slaughter-houses fall short of the standards demanded by the American Army Veterinary Corps."

The Committee did not state the reason for the United States officials' objection; but having regard to the fact that veterinary inspection of meat has been a reality across the Atlantic for just over half a century, and that Dutch slaughter-houses, under veterinary direction, were acceptable, the reason, it would seem, is not far to seek.

The irony of the situation lies in the fact that the original consignment of live cattle from this country —which led to a traffic causing so much public concern, and to the appointment of a Government Committee—was to complete an American army contract. Had conditions here been acceptable, meat rather than beasts might have been shipped, and the traffic never started.

It is not necessary to repeat, to veterinary surgeons, the familiar arguments put forward again and again by the B.V.A. They have failed, so far, to move official opinion; but at least Parliament and the nation have had a sharp reminder what independent opinion has to say about the slaughter, and, by implication, about meat inspection in England.

Another point of importance, briefly referred to last week, is the condition under which cattle travel in our own country. Because of a well-founded humanitarian tradition, public opinion is too ready to assume that animal welfare at home is superior to that abroad. Such complacency received a jolt when the Committee found more evidence of bruising from home transport than from that suffered when cattle were actually on the continent. It was pleasing to read the tribute to the personnel of British Railways, but it seems that the apparatus at their disposal lags behind that of at least some other western nations. The Committee has suggested, and has given cogent reasons for suggesting, that live cattle should be shipped only to smaller countries which would undertake not to re-export. If this recommendation were to be endorsed by Parliament, France would be excluded as an importer of live British cattle intended for slaughter, a reason being the greater distances to be traversed in that county, with the consequently greater risk of suffering to the animals. It may be suggested that before showing ourselves too conscious of any beam in our French friends' eye, we should first correct the mote in our own.

No one reading the Committee's Report, with its informative appendices, can fail to be struck by the evidence of practical knowledge and ripe experience which abound on almost every page. Mr. G. N. Gould would not wish to be singled out from among colleagues who included Mr. A. J. Champion, M.P., whose opinion rightly commands the respect of the profession, and Lady Tweedsmuir, who showed, in opening the Aberdeen Congress, such a notable grasp of veterinary and agricultural matters. The fact remains, however, that the inclusion of a veterinarian on an official body charged with the investigation of a subject affecting animals is richly justified in its results. The profession has had cause to complain in the past that committees and other official bodies have been constituted without sufficient regard to the specialised knowledge the veterinarian can offer. It may be hoped that the personnel of the Committee of Enquiry into the Export of Live Cattle to the Continent for Slaughter is a precedent for the future.

Infectious Cystitis and Pyelonephritis of Pigs: A Preliminary Communication

BY

M. A. SOLTYS and F. R. SPRATLING

School of Veterinary Medicine, University of Cambridge

A DISEASE of pigs characterised by cystitis and pyelonephritis was described by Kitt in 1873, and there have since been several reports of a similar condition.

Urine and kidneys from affected pigs have been subjected to bacteriological examination by Degen (1907), Joest (1924), Larsen & Tondering (1954), and Weidlich (1954). Various diphtheroid bacteria, *Bacterium coli*, streptococci, and staphylococci were isolated. Degen and Weidlich both suggested that one of the diphtheroid bacteria, isolated from a majority of the cases examined, should be named *Corynebacterium polymorphum suis*. Weidlich found that *Bact. coli* was also often associated with inflammatory disease of the pig's urinary tract.

As far as we are aware the organisms associated with infectious cystitis and pyelonephritis of pigs have not been investigated fully in this country, although Field & Gibson (personal communication, 1955) have encountered diphtheroid bacteria in cases of this disease in East Anglia.

The disease is evidently recognised by many veterinary surgeons in practice in various parts of this country.

This communication will describe preliminary investigations into six cases occurring on three farms. Four of these occurred in a breeding herd of about 100 adult pigs in Norfolk, where a total of 16 cases have been recognised since 1953. For brevity, this herd will be referred to as N.1. The other two arose sporadically in another herd in Norfolk (N.2.) and in a herd in Cambridgeshire (C.1.).

Clinical Findings

In this series of cases clinical signs were observed in four females and one male. The usual history in the sows was the development three or four weeks after service, of a vaginal discharge accompanied by the frequent passage of blood-stained turbid urine. The one boar showing symptoms suffered from haematuria for four days.

The clinical findings are summarised in Table I. The individual cases are described in more detail in the Appendix.

Post-mortem Findings

The *post-mortem* findings are summarised in Table II (page 502).

In one (Case II) no gross changes were visible to the naked eye.

Five cases showed cystitis, two showed ureteritis, and the same two showed pyelonephritis.

As stated in the Appendix, it is regretted that the kidneys of Case VI were not recovered, especially as this animal showed marked changes in the bladder and lesions could therefore have been expected in the kidneys.

Urinary Bladder

Markedly affected bladders contained thick blood-stained stinking urine.

The bladder walls were thickened, with swollen mucous membranes which were orange to deep red in colour.

Microscopic examination of fixed and stained sections from two animals (I and III) revealed numerous changes of the epithelium, notably proliferation and desquamation of cells. Some areas showed marked degeneration and necrosis of the epithelium; other areas showed very little degeneration.

The connective tissue of the submucosa had proliferated and was oedematous. Oedema extended into the muscle layers.

Diphtheroid bacteria were seen in great numbers in the necrotic epithelium, but were not seen in the deeper structures.

Ureters

The right ureter from Case I did not appear to be thickened but showed slight inflammation of its mucosal surface. The left ureter was about twice as thick as the right. This change was due chiefly to oedema of the submucous connective tissue.

Both ureters from Case III showed a slight inflammation of the mucosa.

Kidneys

The left kidney from Case I was enormously enlarged and contained very little recognisable kidney tissue. The kidney pelvis was greatly distended with pus.

The right kidney from Case I and both kidneys from Case III were a mottled greyish-red in colour and tough in consistency. Histological examination of these three kidneys revealed proliferation of connective tissue and fibrosis. The interstitial tissue of the cortex revealed numerous lesions characterised by infiltration by lymphocytes, polymorphonuclear and mononuclear phagocytes, and proliferation of fibroblasts with fibrosis. The intertubular connective tissue of the medulla had proliferated and produced marked pressure changes, with a decreased number of tubules. The pelvis of the kidney was inflamed and haemorrhages were seen in the mucous membrane.

Vagina and Urethra

Macroscopic examination of the four females showed inflammatory change of the mucosa of the vagina and urethra. Neither of the two males showed

TABLE I
CLINICAL FINDINGS

Case	Herd	Sex	Age	History	Clinical signs: Urine: Blood	Urine: Pus	Urine: Incontinence	Vaginitis	Thirst	Appetite	Rectal temperature	Bodily condition	Organisms recovered from urine	Treatment	Outcome
I	N2	F.	3 to 4 years	Served 1 month before vaginal discharge observed. Pregnant to this service	+	+	+	+	Normal	Variable, good to fair	99°–102·8° F.	Progressive loss of flesh	*C. suis* *Bact. coli* *Staph. aureus* Strep. β-haemolytic Strep. α-haemolytic	1. Oxytetracycline. Slight improvement. 2. Chloramphenicol. Became clinically normal for 10 days, but relapsed after further 12 days	Slaughtered 9 weeks after onset. Very marked lesions
II	N1	M.	4 years	Has served sows in which the disease was subsequently observed. Haematuria during past week	+	—	— Urine became normal 11 days after onset of haematuria		Normal	Good	101·6–102° F.	Good	*C. suis* *Bact. coli* *Staph. albus*	None	Slaughtered 4 weeks after onset of haematuria. No lesions
III	N1	F.	3 years	Served twice during past 6 weeks by boar (Case II). Haematuria during past few days	+	+	+	+	Excessive	Variable, nil to fair	101·6–102·6° F.	Good	*C. suis* (pure culture)	None	Slaughtered 1 week after onset. very marked lesions
IV	N1	M.	4 years	No clinical abnormality *C. suis* in urine sample 16 days ago	—	—	—		Normal	Good	101·6–102·8° F.	Good	*C. suis* (pure culture)	None	Slaughtered 4 weeks after discovery of *C. suis*. Slight cystitis
V	N1	F.	Mature	Urine sample negative for *C. suis* 16 days ago. Pregnant to boar case IV	—	—	—	—	Normal	Variable, nil to poor	99–101° F.	Fair	None	None	Slaughtered 4 weeks after original urine sample. Slight cystitis
VI	C1	F.	10 months	Losing condition for past 4 months. Served 18 days ago. Haematuria first observed 10 days ago	+	+	+	+	Excessive	Variable, poor to good	102–102·8° F.	Poor	*C. suis* *Bact. coli* Streptococci Aerobic Diphtheroids	Penicillin and streptomycin combined daily for 7 days. Appetite improved, but but no other change	Slaughtered 6 weeks after onset of haematuria. Pregnant. Marked lesions (kidneys not examined

changes in the urethra which were visible to the naked eye.

Bacterial Examination

Urine

Bacteriological examination of the sediment of the urine of affected pigs revealed *Escheria coli*, various streptococci and staphylococci, Proteus species and diphtheroid bacteria. Anaerobic incubation of blood-agar plates inoculated with urine sediment yielded a pure culture of a diphtheroid bacterium from all six cases described.

Bladder

Smears were made from the mucoid pus in the bladder and from scrapings of inflamed areas of the bladder mucosa. In all cases gram-positive diphtheroid bacteria were observed.

Cultures were made from the same material by inoculating blood-agar plates and incubating at 37° C. under aerobic and anaerobic conditions. Aerobic culture failed to reveal any bacterial flora, but anaerobic culture produced flat opalescent colonies after four to six days. Smears made from these colonies revealed gram-positive diphtheroid bacteria.

Other tissues

An organism indistinguishable from that described above was obtained from the kidney and regional lymphatic nodes of Case III.

TABLE II
Post-mortem FINDINGS

Case	Sex	Vaginitis	Cystitis	Ureteritis	Pyelonephritis	Organisms isolated
I	F.	+	+	Left—advanced Right—slight	Left—advanced Right—slight	*C. suis* pure culture*
II	M.		No macroscopic lesions seen at *post mortem* in spite of transient haematuria			*C. suis* pure culture*
III	F.	+	+	+ both ureters	+ both kidneys	*C. suis* in pure culture from bladder kidney and regional lymphatic nodes
IV	M.		+ (slight)	−	−	*C. suis* pure culture*
V	F.	−	+ (slight)	−	−	*C. suis* pure culture*
VI	F.	+	+	Ureters and kidneys not recovered from slaughter-house		*C. suis* pure culture*

* Cultures were only made from bladder, except in Case III. Aerobic and anaerobic methods were used.

These bacteriological findings, associated with lesions of a uniform character and the distribution of diphtheroid bacteria in histological sections which we have described above have led us to suspect that we are dealing with a specific infectious disease. We therefore suggest that the anaerobic diphtheroid micro-organism be named *Corynebacterium suis*.

It is difficult to assess whether this organism is identical with the presumably aerobic diphtheroid bacteria named *Corynebacterium polymorphum suis* by Weidlich (1954). It is possible that he observed the anaerobic organism in stained smears but cultivated one of the aerobic diphtheroid bacteria commonly found in the urogenital tract of pigs and other animals. We do not know whether he attempted anaerobic culture.

The Morphological and Cultural Characteristics of *Corynebacterium suis*

The rods are slender and pleomorphic and vary from 2 to 3 μ in length. They stain well with the common stains and are gram-positive although they are easily decolorised, especially in cultures.

The distribution of organisms in a smear made from diseased tissues is fairly characteristic of the diphtheroid group.

Cultural Characteristics

C. suis can only be isolated under anaerobic conditions, using ordinary media enriched with blood or serum.

Growth occurs readily on serum or blood agar and reaches its maximum in five to seven days at 37° C. It produces circular, flat, opalescent colonies of granular structure with crenated edges.

Similar growth occurs in 10 per cent. milk agar without change occurring in the medium.

In serum broth or cooked meat medium a varying degree of turbidity with a granular deposit appears after three days at 37° C.

No growth has been observed on nutrient agar or MacConkey medium.

Biochemical Reactions

Fermentation reactions were tested over a period of 14 days at 37° C. in peptone water containing 10 per cent. serum and 1 per cent. of carbohydrate. Sucrose was the only common sugar to be fermented, acid being produced but no gas. No change occurred in lactose, laevulose, galactose, maltose, dextrose, and xylose.

Litmus milk was alkaline after seven days at 37° C.

Indol and Vosges-Proskauer reactions were negative.

The methyl-red and methyl-blue reduction tests were negative.

Nitrates were not reduced.

Catalase reaction was negative.

As with *C. renale*, Christensen's urea medium was changed with release of ammonia. No liquefaction occurred in deep gelatin.

Sensitivity to Antibiotics

Sensitivity to various antibiotics was estimated *in vitro* by methods based on dilution. Graded quantities of the drug were added to a series of tubes containing 10 per cent. serum in nutrient broth. The tubes were then inoculated with strains of *C. suis*

Control tests consisted of the same dilutions of the drugs inoculated with a standard Oxford strain of

Staphylococcus aureus.

Propylene glycol which is used to prepare solutions of chloramphenicol was also tested for its inhibitory effect which was nil.

The lowest concentration to prevent visible growth was taken as the end-point.

Results are summarised in Table III. They suggest that chloramphenicol and oxytetracycline may be the most effective therapeutic agents to combat this infection.

The very marked lesions shown by Case III one week after the onset of clinical illness, suggest that by the time most cases can be diagnosed the lesions are so advanced that treatment will be valueless.

TABLE III

THE SENSITIVITY OF *C. suis* TO VARIOUS ANTIBIOTICS

Strains	The lowest dilution to prevent growth					
				Tetracycline drugs		
	Penicillin in μ per ml.	Streptomycin sulphate mg. per ml.	Chloramphenicol mg. per ml.	Oxytetracycline hydrochloride (terramycin) mg. per ml.	(Tetracycline HCl crystal (achromycin) mg. per ml.	(Chlortetracycline HCl crystalline (aureomycin) mg. per ml.
C. suis 1 ...	0·1	0·1	0·001	0·01	0·01	0·1
„ 2 ...	0·01	0·1	0·01	0·01	0·01	0·1
„ 3 ...	0·01	0·1	0·001	0·01	0·01	0·1
Staphylococcus "Oxford" ...	0·01	0·01	0·01	0·1	0·01	0·1

Experimental Pathogenicity of *C. suis*

Attempts have been made to infect young pigs. Four castrated males were used after their urine had been shown to be free from *C. suis* on two occasions.

Two of these pigs when 12 weeks old each received 5 ml. of seven-day-old serum broth culture of *C. suis*, one subcutaneously and one intravenously. No clinical abnormality resulted and repeated bacteriological examination of their urine failed to reveal *C. suis*.

A similar dose of culture was then inoculated into the urinary bladder through the body wall of each of the other two pigs which were by then 16 weeks old. No clinical abnormality resulted, but *C. suis* was excreted in the urine of both pigs for eight weeks, after which time they were slaughtered.

At autopsy at 24 weeks of age, the urinary system of all four pigs was normal and cultures from various parts of the tract all failed to reveal *C. suis*.

Cultures of *C. suis* have also been inoculated by various routes into rabbits, guinea-pigs, rats, and mice without establishing infection.

Examination of Normal Pigs

It was decided to collect urine from clinically normal pigs and to examine it for the presence of *C. suis*.

Individual samples were obtained from pigs of both sexes and various ages in herds where the disease was known to exist and in other herds believed to be free.

Out of 20 samples from two affected herds (N.1. and C.1.) three samples collected from three different boars were infected with *C. suis*. One of the boars was admitted to the hospital and eventually slaughtered and in spite of the fact that no clinical change had been detected, a slight cystitis was found from which *C. suis* was recovered in pure culture (Case IV above).

Thirty samples from unaffected herds were all free from *C. suis*.

The flora of the samples collected from normal pigs comprised mainly *Escheria coli*, Proteus spp, aerobic diphtheroid bacteria, and streptococci either of Group D or serologically (?) unclassifiable.

Pigs' urinary bladders were collected at random from local slaughter-houses and examined macroscopically for abnormalities and bacteriologically for the presence of organisms.

Twenty-five macroscopically normal bladders all failed to reveal *C. suis*. Those bladders which had been handled and collected fairly aseptically failed to produce any organisms at all.

Study of urine and urogenital tissues from normal pigs is continuing.

Discussion

The opinion expressed by previous workers that pyelonephritis is a specific infectious disease has received support from our investigations.

The organism which we have encountered in each of the described cases occurring in three different herds has shown identical morphological and cultural characters. Only three of 50 clinically normal animals revealed this organism in samples of urine. Two of these animals were examined *post mortem* and were shown to suffer from a slight cystitis associated with the organism in pure culture. Twenty-five urinary bladders collected from the slaughter-house and therefore presumably from normal pigs failed to yield the organism.

The fact that one of the boars (Case II) made a spontaneous clinical recovery suggests that the male may be more tolerant of this infection than the female. It has been demonstrated that experimentally infected male pigs are able to maintain the organism in the bladder for some time. It is therefore possible that natural infections may originate in early life, and that stress in later life may precipitate the disease. May it be that the infection can lie latent in the female until oestrus, parturition, or other stress occurs? If this is so, is it possible for the male to become infected during coitus and for him in turn to infect other sows? The related histories of Cases IV and V suggest the possibility of venereal transmission. (See Table I.)

We have found that cystitis, which has occurred in all our cases, is the most characteristic lesion of the disease. Pyelonephritis with associated ureteritis occurred in two cases. These findings and our very limited experimental work support a theory of ascending infection.

We are continuing experimental work which we hope will clarify the problem of the pathogenesis of this disease and the pathogenicity of *Corynebacterium*

suis and other organisms. We also hope to collect further material from naturally occurring cases of the disease. The co-operation of practising veterinary surgeons would be greatly appreciated.

Summary

An infection of the pig's urinary tract has been described.

The most characteristic clinical sign has been the frequent passage of turbid, blood-stained urine.

Cystitis has occurred in five, and pyelonephritis in two of six pigs found to be infected.

The organism, an anaerobic diphtheroid bacterium for which the name *Corynebacterium suis* has been suggested, has been isolated from five clinical cases.

Acknowledgments.—The authors wish to express their gratitude to Professor W. I. B. Beveridge for his interest and help; to Mr. M. S. Mitchell for his technical assistance; and to Mr. H. C. Swann of King's Lynn for providing clinical material and the history of the cases.

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Appendix

Case I showed very marked signs of vaginitis, pus escaping almost continuously from the swollen vulva.

Case VI was at one stage mistakenly diagnosed as vaginitis and metritis, it being thought that the blood and pus in the urine were washed from the vagina during urination. Examination with a vaginoscope did not remove this misapprehension, as pus was seen in the anterior vagina, indeed, it looked as if pus was escaping through the cervical canal.

Cases IV and V were not clinically recognisable as cases of cystitis. Both animals were found to be infected with *C. suis* by collecting individual urine samples from herd N.1. Case V became constipated and very weak 16 days after sampling and was admitted to hospital for observation.

Four of the six animals showed a general stiffness of movement at some stage of the affection. The common incidence of "cramp" in pigs reduces the significance of this observation, but Case VI showed arching of the back and tenseness of the abdominal wall which were very suggestive of abdominal pain and perhaps of pain in the kidneys. It is very unfortunate that her kidneys were lost at the slaughterhouse and could not therefore be examined.

None of the six cases showed any rise of temperature. Two (I and V) showed occasional subnormal temperatures.

In Brief

EQUINE HAEMOLYTIC DISEASE

(Haemolytic Jaundice of the New-born Foal)

Haemolytic disease of foals has been described by various workers (Caroli & Bessis, 1947; Coombs *et al.*, 1948; Bruner *et al.*, 1948; Berthelon & Meynard, 1949; Farrelly & Miller, 1954; Cronin, 1955). It is produced by sensitisation of the mare by the red cells of the foal while the latter is *in utero*, leading to iso-immunisation of the mare. Diagnosis can be established in the mare prior to parturition by examination of blood serum for a rising antibody titre in samples taken preferentially four weeks, a fortnight, and a few days before foaling. Prevention can be achieved by muzzling the foal of a sensitised mare at birth so as to avoid any possibility of access by the foal to the antibody-rich colostrum. The foal must be hand fed for 36 hours, after which time antibodies cannot enter *via* the alimentary canal. A number of satisfactory substitutes for mare's colostrum are discussed by Farrelly & Miller (1954), who recommend recently foaled mare's milk (not colostral); colostrum from a healthy (unsensitised) mare; or cow's milk or colostrum. The latter should be tuberculin tested and of low fat content. About five parts of milk should be mixed with one part of saccharated lime water, with the addition of one part of "Ribena" blackcurrant juice to every eight ounces. Half an ounce of glucose or cane sugar may also be added. About 10 oz. should be fed every three or four hours.

In the established case, treatment is by exchange transfusion (Cronin, 1953) with compatible donor blood. Diagnosis in the established case can be made from a sample of the foal's blood which reveals a profound anaemia and a bilirubinaemia. The red cells of the foal's blood in such a case are sensitised by coating with the antibody and will agglutinate in the presence of antiglobulin serum (Coombs *et al.*, 1948).

R. K. ARCHER (October, 1956).

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THE AGRICULTURAL RESEARCH COUNCIL

Lord Rothschild, G.M., F.R.S., is to relinquish the Chairmanship of the Agricultural Research Council on June 30th, 1958, after 10 years' service. The Duke of Northumberland has accepted the invitation of the Committee of Privy Council for Agricultural Research to succeed Lord Rothschild as from July 1st, 1958.

The Clinical Diagnosis of Haemolytic Disease in the New-born Pig

BY

R. F. W. GOODWIN

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HAEMOLYTIC disease of the new-born piglet has been reported from Hungary (Szent-Iványi & Szabó, 1952, 1953), Britain (Buxton & Brooksbank, 1953a, b) and the United States (Doll & Brown, 1954), and in the former two countries extensive studies have now been made on the pathogenesis and epidemiology of the condition. With the realisation, in Britain, that many litters possessed sensitized cells without showing severe clinical cases and that more emphasis had to be placed on the examination of the piglet before incriminating haemolytic disease as the cause of death (Goodwin, 1954), the need arose for diagnostic criteria that could be used with confidence on the farm. The purpose of this paper, therefore, is to describe those signs that the writer has found to be most useful in identifying field cases, rather than to describe the many pathological changes that can arise in the disease. It must be emphasised, however, that the description that follows applies essentially to the condition as it is seen in Britain; for though it is probable that the disease abroad is basically similar, it appears that some of the Hungarian cases, for example, have occurred without the mediation of crystal-violet swine-fever vaccine.

Methods and Clinical Material

Laboratory tests. The direct anti-globulin sensitization tests were carried out as part of other work and their description will be found elsewhere (Goodwin & Saison, 1957). Blood-glucose concentrations were estimated with the reagent of Somogyi (1945) after deproteinization with barium hydroxide and zinc sulphate.

Clinical material. Approximately 350 piglets from about 40 litters showing varying degrees of affection with haemolytic disease have now been examined, often almost continuously from the moment of birth. Although it is probable that all the main forms of the disease have been studied, it is doubtful whether these cases represent the true incidence of each type of the disease in the field, and for this reason it would be unwise to analyse them precisely in order to show the prevalence of any particular sign. Thus there is evidence already (Goodwin & Saison, 1957) that many of the sows in our possession had been selected because they had the ability to maintain a high iso-antibody titre for many months or years; and as it is probable that cases of the acute type, where jaundice may not be a feature of the disease, would be more commonly overlooked in the field, the total number of litters brought to our notice could also be selected clinically.

Clinical Diagnosis

In this disease circumstantial evidence is important. No case has been seen where the sow was definitely unvaccinated with crystal-violet swine-fever vaccine, and most sows with affected litters have been vaccinated twice (Goodwin & Saison, 1957). The disease has been seen most commonly in piglets sired by Large White boars out of Essex or Wessex sows and although a few cases have been seen in pure Essex, pure Wessex and pure Landrace piglets, none has been seen in pure Large White animals. Indeed, it appears that Large White sows do not often respond to vaccination by producing serum iso-antibodies that are reactive against the red cells of Large White boars (Goodwin & Saison, 1956).

When examining an ailing litter it must be borne in mind that this disease, like many others, can bring about the hypoglycaemic collapse syndrome of the new-born pig. For this reason it has been stressed (Goodwin, 1955) that the first consideration in all early mortality must be to apportion the blame for any interference with nutrition between the sow and the litter, and then to seek those specific signs in either the sow or the piglets upon which a diagnosis can be made. The following example, being one of several available, illustrates this point well.

In a litter of 11 pigs one animal was soon overlain but two more were dead by 14 and 19 hours. At the latter time a fourth pig was nearly dead: it lay on its side gasping, with an almost inaudible heartbeat and a rectal temperature of 68° F.; the blood-glucose concentration was 42 mg. per 100 ml. Four of the remaining seven pigs showed slight hypothermia (mean temperature 94.5° F.), and by 36 hours these four pigs, together with one other, were also dead. Hence only two pigs remained. Both showed bradycardia (approximately 140 beats per minute) and weakness, and the blood-glucose concentration in each was between 30 and 35 mg. per 100 ml. Hypothermia was more marked (92.5° F.) in one animal, however, and this animal was clearly destined to die first. At 48 hours it showed typical hypoglycaemic convulsions, a heart rate of 100 beats per minute and a rectal temperature of 80° F., while the glucose concentration was 22 mg. per 100 ml. Also at 48 hours the last surviving pig had a rectal temperature of 87° F. and a blood-glucose concentration of 17 mg. per 100 ml.; it died between 76 and 87 hours. By not referring to the haemoglobin concentrations, a litter such as this might be presumed to be dying of uncomplicated malnutrition brought about by agalactia, whereas all but the first pig were

suffering from very severe anaemia. The impression would have been enhanced in this case by the almost complete absence of jaundice. Once agalactia has been ruled out, therefore, the collapse syndrome in the piglet should be ignored as far as differential diagnosis is concerned.

The diagnostic signs in haemolytic disease are mainly threefold: colour changes in the skin and carcase, haemoglobinuria and the condition of the blood; taken together they should establish a diagnosis in nearly all instances. Other changes seen at autopsy, such as blood-stained peritoneal fluid or enlarged and darkened spleens, have been found to be far less constant; but the condition of the stomach should be noted, as in haemolytic disease it is usually well-filled.

The colour changes are commonly seen best when the carcase is laid open, the subcutaneous tissue repaying the closest inspection. In Saddleback piglets the unpigmented skin of the saddle may be used as an *ante-mortem* guide, but although jaundice can be detected externally in black-skinned piglets, it is clearly simpler to examine the opened carcases in these instances. The colour changes that occur can be explained on the basis of there being two main pigmentations, each of which may vary in intensity. These pigmentations are, first, a yellow colour and, secondly, a red-wine colour suggestive of free haemoglobin. The icteric colour may be present in a pure form and appears in all shades from a very pale cream to a strong sandy-yellow as seen in leptospirosis. The latter colour is very obvious, but the shades of light cream could be readily overlooked. Equally, the wine colour may exist without jaundice, and then the pig appears to remain pink even though the packed cell volume is extremely low. On closer inspection, however, it will be seen that the skin is an unnatural pink, the change being from the rich, arterial colour of the healthy skin to a slightly cyanotic appearance, and it is this colour that is most misleading. Both the yellow and wine colours may be absent, in which event the piglet shows only pallor. Relatively few cases of this type have been seen but there have been many where the jaundice was so slight that they were almost of this class. In some instances, however, jaundice may be more marked in the coils of the intestine than in the musculature. The remaining cases, therefore, exhibit all possible combinations of the two basic colours and, in general, recognition becomes easier as the wine colour becomes less intense. Thus when slight jaundice is imposed upon the latter colour the piglet assumes an orange tinge, which is not so far removed from the normal pinkness that it commands attention, and these cases may also be commonly overlooked in the field. At the other end of the scale, when icterus is predominant but infused with the wine colour the piglets appear bronze.

It might be suggested that in the most acute forms of the disease there would be insufficient time for jaundice to appear, but the present series of cases does not completely support this simplification, in that whereas the mainly haemoglobinaemic type has not been seen in cases that recover, intense icterus has been seen in all forms of the disease; that is, little discoloration other than strong icterus has been seen in a litter that died between 6 and 20 hours of birth. It is very probable, however, that jaundice is more characteristic of the less acute forms and it is important, therefore, that the disease does not become too rigidly associated with this sign. When the disease takes a mild course there is often slight jaundice superimposed upon the effect of a high haemoglobin concentration and then the skin has a peach tint. This effect, although of benign origin, is superficially similar to that seen in one type of acute case already mentioned.

Haemoglobinuria is a very useful sign, particularly in acute cases. Some discoloration of the urine, ranging from an intensification in yellowness to a cider colour, occurs in most clinical cases, but frank haemoglobinuria has been seen in a high percentage of all the cases where the disease was fatal. In opening the abdomen at autopsy, therefore, care should be taken to avoid rupturing the bladder, particularly as it may be distended.

PLATE 1

SLIDE 1.—Control piglet from unvaccinated sow. Aged 2 days.

SLIDE 2.—Control piglet from unvaccinated sow. Very mild agglutination; direct sensitization test negative. Aged 2 days.

SLIDES 3, 4 and 5.—From one litter with very mild haemolytic disease on third day. Slides 3 and 5: almost no agglutination macroscopically, and both bloods not quite clearly negative in direct sensitization test. Slide 4: weakly positive macroscopically; also weakly positive in direct sensitization test.

SLIDE 6.—Agglutination in blood from a sow.

SLIDE 7.—Mild but clinically apparent haemolytic disease at nearly 3 days. Hb. 7.3 g.

SLIDE 8.—Haemolytic disease in pig just over 5 days old. Hb. 3.6 g.; obviously affected clinically. Agglutination not marked, but strongly positive in direct sensitization test.

SLIDE 9.—Acute haemolytic disease. Blood from pig found dead at 24 hours. Hb. at 17 hours, 3.6 g.

SLIDES 10 and 11.—Acute cases from same litter.

SLIDE 12.—Acute haemolytic disease. Pig killed at 53 hours, when Hb. 1.4 g.

SLIDE 13.—Same pig allowed to decompose for 2 hot, summer days. Heart blood taken from very putrid carcase; still clearly positive.

SLIDE 14.—Piglet from a litter where two others died from acute haemolytic disease. Sample taken at 36 hours showing massive agglutination.

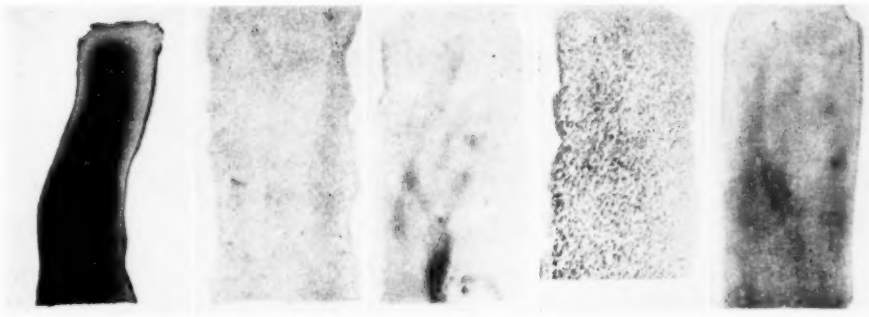
SLIDE 15.—Same piglet at 4½ days. Agglutination less intense. This animal was seemingly unaffected by the sensitization (Hb. at 3½ days, 8.0 g.).

PLATE 2

Slides 1, 2, 3, 4, 8 and 9 are shown at increased magnification.

R. F. W. GOODWIN.—THE CLINICAL DIAGNOSIS OF HAEMOLYTIC DISEASE IN THE NEW-BORN PIG

PLATE 1



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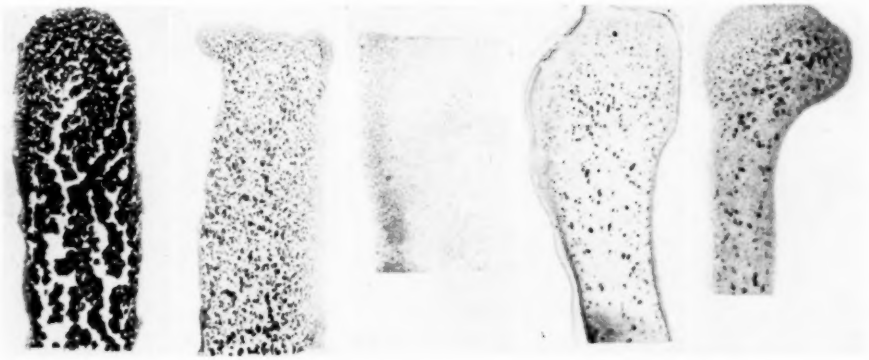
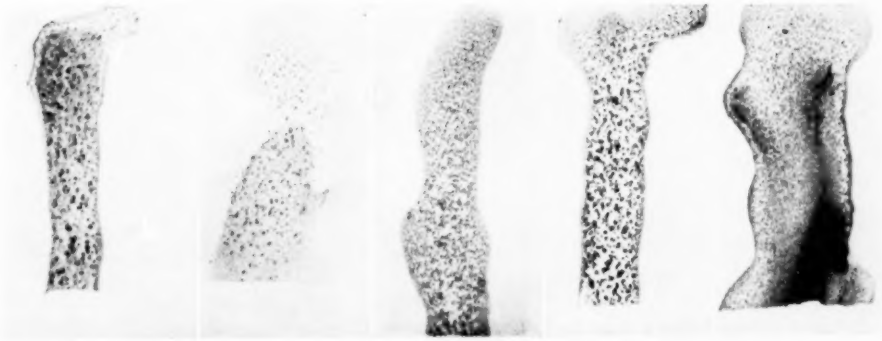
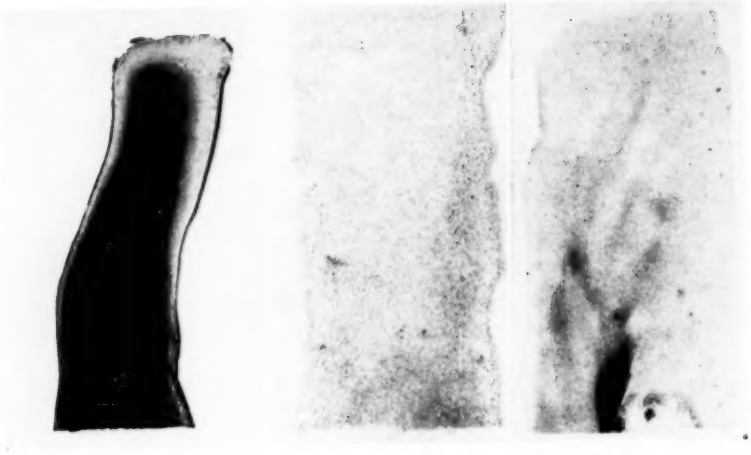


6 7 8 9 10



11 12 13 14 15



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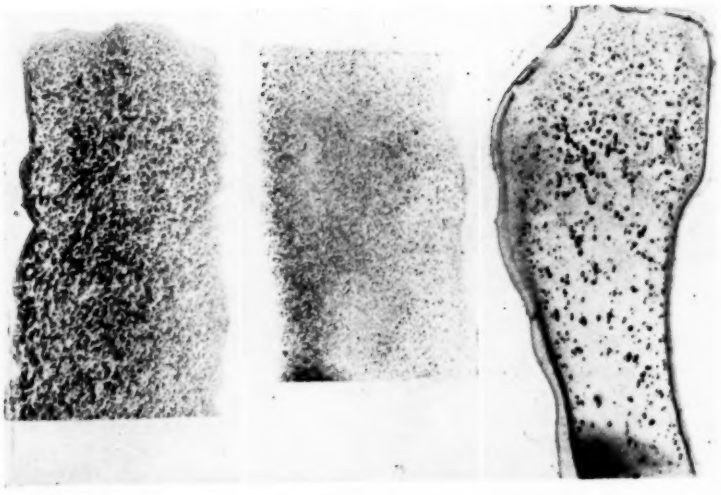

4 8 9

With reference to the blood changes, various authors have observed that spontaneous auto-agglutination may occur in blood samples taken from affected piglets, although their main concern has been with the difficulties that ensue from this, such as when red-cell counts are required or the cells need to be suspended in saline for serological tests. It seemed possible, however, that advantage might be taken of this property to develop a field test. Furthermore, in developing such a test it was hoped that it might be less sensitive than the direct anti-globulin sensitization test and react only in those cases where the disease produced marked clinical signs. In practice, however, the test has been found to be highly sensitive. It is extremely simple, and is performed as follows.

Field Test

A few drops of blood are placed at one end of a glass slide, enough blood being used to ensure that it will flow freely. The slide is then held between the first finger and thumb of each hand and gently tipped back and forth so that the red cells tend to sediment while being washed in their own plasma. Blood taken from pigs dead or dying from haemolytic disease is usually very thin (which is a further diagnostic point) and it is necessary then to commence with as much blood as can be handled without overspilling and to use the rocking motion to concentrate the cells at one part of the slide. Alternatively, if sensitization is heavy but the blood still thick, auto-agglutination will cause the red cells to clump in large masses and it is preferable to prevent this by coaxing most of the sedimented cells away from the part of the slide to be examined. In short, agglutination is best seen when the blood is neither thick nor very thin. When the desired cell concentration has been achieved, the slide can be allowed to dry out. The plasma can be observed at this stage, as in positive cases it is often tinged with yellow. The test is positive when the red cells aggregate into discrete clumps and in general, with thin blood, the more severe the disease the more discrete the clumping (Slide 9). The agglutination is commonly so marked that the few red cells remaining are drawn together into small, red pin-points fairly widely dispersed over the slide (Slides 9, 10, 11 and 12). With mild cases of the disease (Slide 7) or with cases that are recovering (Slide 15), the agglutination becomes progressively less discrete until, eventually, only a patchy distribution of the cells occurs. The speed with which the agglutination appears is a further way of grading the results.

In the writer's hands, the test has proved most reliable and on only one occasion has it been obviously wanting. This was when part of a litter died at nearly five days of age, which is about the oldest age at which death occurs. A negative result was obtained with thin blood from three dead pigs and only a weak positive with the blood from two of the survivors (see Slide 8). Yet the direct sensitization tests were strongly positive for the dead animals. This discrepancy may be due to the possibility that little free antibody might remain in pigs that succumb as late as the fifth day. In the example just mentioned there was no doubt on other clinical grounds that the piglets had died from haemolytic disease.

The blood of a large number of control piglets from unvaccinated sows has been examined in the same way. Commonly these samples, which are very much thicker than those from fatal cases of haemolytic disease, dry out in a smooth film (Slide 1). On numerous other occasions a very mild type of agglutination has been seen (Slide 2), which would not be confused with that occurring in severe cases of haemolytic disease. Samples showing the former mild agglutination have not given a positive result with the direct sensitization test. The blood of one sow in our herd consistently shows massive auto-agglutination (Slide 6) but nothing comparable to this has yet been seen in the blood of control piglets.

Fortunately it is rare that only one carcase is available for examination and, as stressed by Szabó, Szent-Iványi & Széky (1956), it is preferable to examine as many pigs in a litter as possible and then sum up all the evidence before concluding a diagnosis.

Summary

An account is given of the main evidence that should be considered in diagnosing haemolytic disease in the new-born pig. In fatal cases of the disease the interruption with nutrition imposes upon the more specific signs the syndrome of metabolic collapse and the latter, which is common to most mortality of the new-born pig, can be ignored. The most useful diagnostic signs are colour changes in the skin and carcase, haemoglobinuria and changes in the character of the blood. The latter changes can be used as the basis of a simple field test, which is described.

Acknowledgments.—Most of these observations were made when collecting cases for work on the epidemiology of haemolytic disease, and the direct sensitization tests were performed by various colleagues in the laboratory of Dr. R. R. A. Coombs. Dr. J. C. Buxton and Mr. H. I. Field, together with several practitioners, have very kindly passed on to the author cases of the disease from their respective areas, while general laboratory assistance has been given by Mr. P. J. D. V. Brett. The work is part of a wider study on haemolytic disease and the blood groups of the pig, which was initiated by Professor L. P. Pugh and supported financially by the Agricultural Research Council. The photographic plates were prepared by Mr. L. W. Devereux.

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Testosterone Implant in the Treatment of Chronic Dermatitis and Alopecia in a Bitch

BY

W. E. M. PHILLIPS

Lytham St. Annes, Lancs

A MONGREL smooth-haired fox terrier type bitch, nine years old, had suffered from a slowly progressive dermatitis for about one year. Lesions first appeared on the ears, lower surface of the chest, the abdomen, on the legs and feet, and perineal region. The skin became erythematous with loss of hair and patches of a moist dermatitis appeared in various places (Fig. 1). The hair around the eyes became sparse and later two bald rings developed and eventually the entire face and ears became hairless. As the condition advanced the skin on the face became thickened, wrinkled, and slate coloured; it also became moist, and crusty lesions appeared. Pruritis was absent. Skin scrapings from the face and body were negative for demodectic or other mites. Various therapeutic agents were used including the administration of thyroid-gland extract, arsenic, and vitamins, the topical application of antibiotic ointments and lotions of various kinds and bathing the animal in benzene hexachloride preparations. These treatments produced little more than a temporary healing of the moist lesions. Changes in the diet also failed to alter the course of the condition.

FIG. 1.—Lesions on the perineal region.

It was decided to give the animal a subcutaneous implant of 25 mg. of testosterone proprionate because a previous case of alopecia in a bitch had appeared to benefit from the use of a similar implant. Under local anaesthesia an incision was made posterior to the scapula over the ribs, the pellet inserted together with some penicillin cerate and the wound was closed with a single nylon suture. When the suture was removed seven days later it was noticed that hair was already beginning to develop on the face. One month later the growth of hair on the face was normal, there was a better growth of hair on all other parts of the body, and the skin was generally improved, though some lesions still remained on the limbs. The owner reported an improvement in the animal's vitality. After a further month all lesions had healed and the animal's coat was that of a normal healthy dog.

While it is realised that this one case is insufficient on which to base any general conclusions, it is nevertheless interesting that the trial use of the subcutaneous implant of male hormone appeared to be responsible for the cure of this extremely obstinate case of dermatitis.

The case is recorded as it may be of interest to others who are faced with similar intractable cases of chronic dermatitis.

CLINICAL NOTE

SEVERE CASE OF SUSPECTED TUBERCULOSIS IN A HORSE

Mr. A. Noel Smith, M.R.C.V.S., reports seeing a severe case of suspected tuberculosis in a horse. The animal, a 10-year-old children's riding pony mare, had shown lethargy for two to three months, although its appetite remained normal. Then small pustules developed on the ventral sternum, on the presternal cartilage—which was swollen and indurated—and on the lower third of the ventral neck. The general condition was deteriorating, but not markedly. The faeces were normal, and there was no cough.

Examination showed a normal temperature and pulse, and an absence of nasal discharge. The mucous membranes were "dirty." Slight friction sounds were heard on auscultation of the chest. In the last week of the pony's life the near fore leg showed a pronounced oedema extending from the elbow to the carpus.

Puncture of the pectoral swelling revealed a haemorrhagic inspissated necrotic material, which in smears showed the presence of acid-fast organisms resembling tubercle bacilli.

The pony was destroyed, and autopsy revealed a massive infection with (suspected) tuberculosis. The pectoral lesion when cut into resembled a section of tuberculous bovine udder. The pleural sacs were filled with dark brown foul-smelling exudate, and the lungs were down to about a quarter of their size, giving the impression that respiration would have been impossible!

Suspected tuberculous lesions were found in the liver and kidneys, and the intestines were a mass of adhesions and granulomas. There were about two gallons of peritoneal exudate, similar to that in the thorax.

Mr. Noel Smith reports the case as tuberculosis is uncommon in horses, and this pony showed lesions as severe as those seen in the worst bovine case.

THE CENTRAL VETERINARY SOCIETY

The Central Veterinary Society will not be holding its summer meeting this year due to the present situation concerning petrol rationing. It is hoped that this meeting will be arranged as usual in future years.

A New Vaginal Prolapse Retainer for the Ewe

BY

N. G. FOWLER and D. A. EVANS

Canterbury, Kent

Introduction

VAGINAL prolapse occurs in many species of animals but is most commonly observed in sheep and cattle. Although vaginal prolapse may occur *post partum*, it is in the later stages of pregnancy in the ewe that the condition may reach serious economic proportions with sometimes quite a high percentage of the animals being affected. The condition has been observed in most countries where intensive sheep husbandry is practised.

The average incidence of ovine vaginal prolapse in Great Britain has been given as 0.53 per cent. with a range of 0.2 to 3 per cent., rising to 20 per cent. in some outbreaks (Edgar, 1952). In New Zealand the average is quoted as 1 per cent. with the percentage rising to 4 to 11 per cent. in outbreaks (Laing, 1945).

There are indications that some breeds, such as the Rambouillett and Merino, do not develop vaginal prolapse frequently, while most English breeds and their crosses appear susceptible (McLean, 1956).

The condition is one in which caudal displacement of the cervix and uterus evert the vagina either to a condition where the mucosa appears between the vulval lips, or to such a degree that the whole vagina is turned inside out with the cervix appearing at the end of the prolapsed mass. It develops more commonly in older animals, the incidence increasing with successive pregnancies, and is much more likely to occur when a very large lamb, twins, or triplets are being carried.

A number of factors may be concerned in the aetiology of this disease and recent investigations have shown that it is not due to any obvious single cause (Bassett & Phillips, 1955; Bassett, 1956; McLean, 1956). It is possible that an hereditary factor may be involved, presenting itself as an endocrine imbalance or an anatomical weakness. Even though the disease may occur in epizootic proportions in flocks, there is no suggestion that it is infectious or contagious.

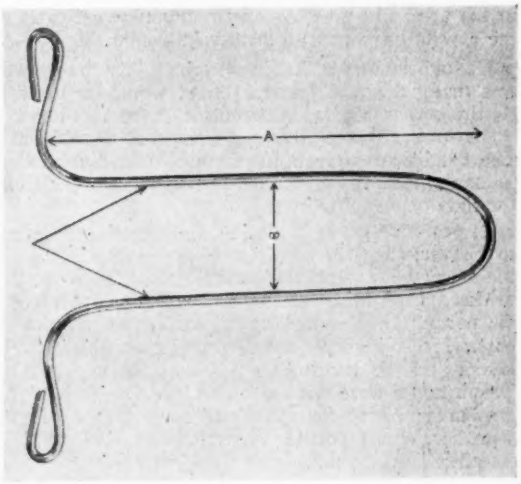
The economic loss due to this disease is extensive because the mortality rate is high. Approximately 50 per cent. of affected ewes die, suffer from incomplete dilatation of the cervix at lambing, or have dead lambs. Even if the ewe recovers, it is believed that the condition will occur at subsequent lambings. Culling of such ewes (and also their progeny on grounds of possibly inherited predisposition) is therefore advisable.

Treatment

Conventional treatment of the condition embraces reduction and retention of the tissues in position. Reduction offers little difficulty even with complete, congested, vaginal eversion, especially if the ewe is turned on her back with the hind legs held up. Usual methods of retention include suturing or clamping of the vulvae, or the shepherd's method of tying the wool lateral to each vulval lip across the vulva, either by actually knotting the wool, or tying it with string. These " wool-tying " methods are often quite successful, but in severe cases more often not so. Vulva sutures, however, tend to be torn out by abdominal pressure.

It has been suggested that a useful supplementary treatment is the administration of chorionic gonadotrophin which assists the regression of vaginal tissues, correcting an hormonal imbalance due to oestrogen excess.

A novel method of retention was suggested to us by a local shepherd, who apparently obtained the idea from a New Zealand shepherd's journal. This takes the form of a metal retainer made in stainless steel wire, which has been used by us in two sizes (see figure), the larger size being used in larger breeds, *e.g.* Kent and Border Leicester, the smaller in Down breeds.



* Tie together here.

	A	B
Small size	6 ins.	1 in.
Larger size	7 ins.	1¼ ins.

Following reduction, the retainer is inserted into the vagina, the eyelets being tied firmly with twine to the wool lateral to the vulvae. The component wires of the posterior vaginal portion of the retainer may then be tied together with twine to prevent vulval separation.

It has been found to be of definite advantage also to attach to each eyelet a length of twine, which is secured under tension to the wool of the respective hip region. These greatly assist in taking strain.

We have used this simple apparatus on numerous occasions, often with gratifying, but sometimes with disappointing results. It has been stated to us that

(*Concluded at foot of col. 2 overleaf*)

Clinical Note

ROUND-CELLED SARCOMA IN THE NECK OF A YOUNG COW

Mr. J. T. Morton, M.R.C.V.S., of Stratford-on-Avon, reports a case of malignant tumour of the neck of a four-year-old pedigree Friesian cow. This cow finished her first lactation on August 18th, 1956, after giving 1,261½ gallons with 3.88 per cent. butterfat. She was due to calve again about September 27th. Nothing unusual was noted in the condition or behaviour of the cow at this time. During the second week of September the herdsman, on his morning inspection, noticed that the cow appeared empty but was grazing and was normal in all other respects. Some mornings later as the cow did not alter he made a more thorough examination, and noted that there was an elongated swelling extending down the cow's neck.

Mr. Morton was asked to examine the cow on September 13th. He found that there was a large and hard tumourlike growth extending from the larynx to the brisket involving the various structures in the area and pressing on the oesophagus, causing the cow to have great difficulty in swallowing.

He told the owner that in all probability the growth was malignant and that treatment would be useless. As the cow was a valuable one it was decided to try and keep her going till she calved in two weeks' time. The condition grew rapidly worse and slaughter on humane grounds was carried out within a week from the date of examination.

At *post-mortem* examination, the growth was found to be very firm in consistence and extended along the ventral surface of the neck from the larynx to the brisket, protruding about 3 to 4 inches beyond the normal level of the ventral surface at its thickest part. It also involved the deep and superficial muscle layers and the connective tissue of the neck. The lymph nodes were not examined. A specimen of the growth was sent for examination to Dr. A. Leslie Sheather, who reported the sections to show multiple round-celled sarcoma.

During 1941 Mr. Morton had a similar experience of a growth affecting the neck of a 10-month-old pedigree Friesian heifer which extended from the region of the larynx to the brisket, involving the various structures. This tumour did not grow so fast as the one quoted above, but Dr. Sheather reported at the time that it was a round-celled sarcoma.

There was no connexion between the two herds from which these animals came, and they were a considerable distance apart.

THE REGISTER OF VETERINARY SURGEONS

Under Section 25 (4) of the Veterinary Surgeons Act, 1948, and the provisions of Statutory Instrument No. 1150 of 1953, the name of Mr. Rene Henry Albert Merlen, Royal Veterinary College, Camden Town, London, N.W.1, was restored, on May 2nd, 1957, to the Register of Veterinary Surgeons.

Current Literature

ABSTRACTS

Leptospirosis in England due to Foreign Species. KEAL, E. E. F. (1957). *Lancet*, April 6th, 1957. 720-1.

All cases of human leptospirosis recognised in this country have hitherto been due to either *L. icterhaemorrhagiae* or *L. canicola*. Broom (1951) found no evidence of infection with " foreign " leptospirae of which *L. bataviae*, *L. grippotyphosa*, *L. pomona*, and *L. sejroe* were chosen as representative series.

The present report concerns a Malayan engineer who had been working for six months in a swampy region of Central Malaya. A fortnight after travelling to Britain by air he became ill. The illness was of a febrile character that persisted. Serological investigation showed a persistent agglutination titre of 1:3,000 to *L. grippotyphosa*. *L. grippotyphosa* is a serotype endogenous in Europe and Asia and carried by the field mole. Clinically the infection was mild and cleared up in 19 days after the onset of symptoms.

Leptospirosis is relatively common amongst British troops in Malaya. It is perhaps surprising with the increased use of air transport that more cases due to foreign species have not occurred in this country. Since leptospirosis is often a benign and self-limiting disease there is a natural reluctance to pursue difficult and prolonged investigations. Thus cases of leptospirosis may well be included in the category " pyrexia of unknown origin," and so the true incidence of both native and exotic forms of leptospirosis in man may be greater than that reported.

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Failure of Prophylactic Oral Penicillin to Inhibit a Human Laboratory Case of Leptospirosis. BROOM, J. C., and NORRIS, T. ST. M. (1957). *Lancet*, April 6th, 1957. 721-2.

A laboratory worker was handling a syringe containing 10 ml. of living culture of leptospirae of a strain not definitely identified that had been isolated in Malaya from a rat. The syringe slipped out of

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A New Vaginal Prolapse Retainer for the Ewe.—*Continued*

an advantage of this method is that the ewe can lamb " past " the retainer, if necessary, but we have not found this to be so.

We do, however, believe that this method of retention merits more extensive trial.

Acknowledgments.—We wish to thank Mr. Bruce V. Jones, M.R.C.V.S., for his assistance in providing the ovine prolapse retainers for our use. We understand that these are now available from Messrs. Allen and Hanburys Ltd.

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MCLEAN, J. W. (1956). *N.Z. Vet. J.* **4.** 38.

his hand and must have fallen almost vertically, for the needle passed through the leather of his shoe and penetrated his foot. The needle snapped off at the mount and only a small quantity of the culture could have been injected by this accident.

The wound was immediately swabbed with spirit and an initial dose of 1,000,000 units of penicillin was given by mouth within an hour of the accident. Thereafter 500,000 units of penicillin were given by mouth every six hours until a total of 6,000,000 units had been administered. The wound appeared to heal by first intention but on the eighth day became red and sore. Between the 9th and 10th day the patient became feverish with severe headache.

The infecting strain was obtained in culture from the blood and indirectly by inoculating a golden hamster. The clinical picture suggested an acute septicaemia rather than the picture associated with *L. canicola* infection. The patient's general condition improved rapidly and this rapid progress may or may not have been due to treatment with oxytetracycline.

G. F. B.

Enteritis from Tortoises. THOMAS, M. E. M. (1957). *Mon. Bull. Minist. Hlth. Lab. Serv.* **16.** 29-31.

Five children developed enteritis, two of them severely, within a month of the purchase of a small Moroccan tortoise. Two older tortoises, that had been kept as pets for two years, showed some inappetence and loss of condition after the introduction of the new tortoise, and one of them developed sore eyes. The examination of faeces samples, two weeks after this outbreak, showed that all three tortoises were excreting a paracolon organism whose antigenic structure resembled that of *Salmonella paratyphi B*, and which could be classified as being intermediate between the Salmonella and Arizona groups of bacteria. The same organism was isolated from the faeces of one of the children, 18 months old, who continued to excrete it for about four months.

The author gives two references to previous isolations of the same paracolon organism from tortoises. In one instance the organism was isolated from the two owners, one of whom had experienced an attack of gastro-enteritis.

The Isle of Wight Warble Fly Eradication Experiment, 1953-1956. MCCUTCHEON, J. A., & DUDGEON, A. (1957). *St. vet. J. Minist. Agric. Lond.* **12.** No. 34. 34-47.

In January, 1953, a pilot experiment was started on the Isle of Wight with the object of showing whether the warble fly could be eradicated by the use of derris dressings, applied to the backs of affected cattle at monthly intervals, as prescribed in the Warble Fly (Dressing of Cattle) Order of 1948. It was considered that the island was ideally situated for this purpose, as its separation from the mainland by at least two miles of water would confine the risk of reinfestation to that associated with the importation of affected cattle.

The island has about 600 herds, comprising some 21,500 cattle. The initial survey, in 1953, showed that about 80 per cent. of the herds and 40 per cent. of the cattle were infested, and the success of the experiment is shown by the fact that in the following three years, at the peak of each season, 73, 32, and 15 per cent. of the herds, and 16, 4 and 1.9 per cent. of the cattle were found to be affected.

The difficulties that were encountered during the experiment included the lack of crushes and other facilities for the handling of young stock, the movement of cattle from farm to farm on the island, and the importation of infested cattle from the mainland. Even when a stiff-bristled brush was used, difficulty was experienced in penetrating long or greasy hair with the dressing, and in such cases it was necessary to clip the hair over the warbles.

The authors state that the method of treatment of choice is the injection of 1 ml. of derris solution into the warble with a syringe, the nozzle of which is inserted down the breathing hole to the fullest extent. They state that this method produces rapid death and expulsion of the larva, and that the lesion then heals within a few days, with less risk of secondary bacterial infection. The method is said to be both safe and painless. Manual expression of the larvae is not advocated.

Spraying to Control Warble Fly. MACLAGAN, D. S. (1957). *Agriculture, Lond.* **63.** 564-567.

The author suggests that the eradication of the warble fly by the use of derris washes may be more difficult in Britain than on the continent of Europe. Thus the bio-geographical variations between one part of Britain and another and the notoriously variable British climate both tend to lengthen the period during which the larvae emerge from the backs of affected cattle.

In view of these difficulties it is worth considering whether it might be useful to supplement the statutory dressings with derris preparations with the use of a protective spray during the egg-laying period. A review of the literature shows that the use of such sprays has given conflicting results, although it appears that DDT is more effective than BHC for this purpose. In one experiment the use of a 1 per cent. emulsion spray of DDT, applied three times between July 18th and August 18th resulted in a 65 per cent. reduction in infestation with the larvae of *Hypoderma bovis*.

The possibility of using systemic insecticides to kill the migrating larvae is receiving considerable attention, but at the present time there is no substance that can be recommended for practical use in this way.

Suspected Rinderpest. GATES, G. M., & HUCK, R. M. (1957). *St. vet. J. Minist. Lond.* **12.** 76-80.

The authors give an account of an outbreak in Kent among a batch of 50 five- to nine-month-old heifers. At one stage the picture resembled that of rinderpest, but laboratory investigation, including cross-immunity experiments, showed that the condition belonged to the mucosal disease complex, and the features and differential diagnosis of this are discussed.

The original paper should be seen for a detailed description of the symptoms and gross lesions shown by these heifers.

E. A. G.

Royal Society of Health Congress: Veterinary Hygiene Section

Professor Pugh delivered the Presidential Address to the Veterinary Hygiene Section of the Royal Society of Health Congress on May 1st. We publish the following extracts by courtesy of the Society. The full text of Professor Pugh's address will be published later in the Society's own journal.

The literature on this subject is very large and dispute is rife, but I think it can be taken as established that the main benefits seen in young farm stock appear in the form of (i) increased growth-rate, and (ii) improved food-conversion rate. There seems to be general agreement that these benefits can be chiefly attributed to the fact that certain subclinical infections are partly or completely controlled and reductions in morbidity and mortality have been noted as an additional effect. These feeding practices have been shown to be sound economically to the agriculturists in certain circumstances, particularly where the standards of hygiene and management are not good.

With all these benefits, one might well ask " Why worry?" And yet gnawing at the back of one's mind are the firmly established facts concerning the development of resistant strains of *Mycobacterium tuberculosis* and *staphylococci* in human medicine. They seem to pose for us two questions: (1) Is it likely that supplementation of animal foodstuffs with antibiotics will result in the emergence of some resistant pathogens to the detriment of the animals themselves? (2) Is it likely to create any new hazards to human health by reason of direct contact with such animals or through the use of products from the animals?

In regard to the first question, there is no doubt but that one of the more obvious benefits to growing live-stock (calves, pigs, fowls, and turkeys) is the fact that certain bowel infections grouped as causing " scours " are largely controlled by antibiotic food supplementation. Recently, however, Williams Smith and Crabb (*Vet. Rec.* **68.** 274) reported an increasing number of resistant strains of *Escherichia coli* during the period 1950-5, during which time streptomycin had been a common therapeutic agent against " white scours " in calves. Lovell, quoting their work, said, " Examination of rectal swabs from calves before and after treatment, showed an increasing population of streptomycin-resistant strains, and phage typing indicated that this change was effected by an elimination of the sensitive strains." Smith and Crabb found that a very much higher proportion of tetracycline-resistant *E. coli* were found in the faeces of pigs and chickens which had been fed diets containing low levels of tetracycline compounds than were found in the faeces of pigs and chickens kept on farms where these agents had never been fed. They also showed that a high proportion of tetracycline-resistant *E. coli* were found in the faeces of piglets whose mothers had been fed tetracycline preparations, and that these piglets on early weaning would develop severe enteric trouble that did not respond to aureomycin but yielded to streptomycin. Here we see the emergence of a pathogenic strain of *E. coli* which the authors showed to be predominantly present on the farms examined, not only in the pigs but in the poultry also. Is there the risk of the emergence of other pathogens? We have seen that resistant strains of *M. tuberculosis* can develop from streptomycin therapy. What happens to the now widely distributed acid-fast Johne's bacillus when present in calves treated with streptomycin? Are we producing specially resistant strains? Would we alter the intestinal flora by antibiotic feeding in a manner that might aid Johne's bacilli? We just do not know. What we do know is that Johne's disease is a major menace to the agricultural industry.

Mastitis in cows due to strains of staphylococci resistant to penicillin and the tetracycline compounds appears to be on the increase. Whereas this probably results from direct therapeutic application to the udder of these antibiotics, the danger of the actual establishment of resistant staphylococci endemically in herds has had some bearing on the veterinary opinion against agreeing to the superimposition of antibiotic feeding to cattle in this country.

In regard to the question as to whether there is any new hazard to the health of people by reason of their direct contact with such animals or through the use of animal products, there appears to be no direct evidence at the moment, although this may be largely due to inadequate methods for assessing the effects.

Buxton (*Vet. Rec.* **69.** 105), discussing recently the public health aspects of salmonellosis in animals, concluded that there has been an increase in the incidence of salmonella infections in recent years in both man and animals and that *Salmonella typhimurium* is the organism most frequently isolated. Pigs and poultry appear to be the commonest affected and probably constitute one of the main reservoirs of infection in this country. As the sensitivity of salmonellae to tetracycline preparations varies considerably there would appear to be no *a priori* reason why the feeding of such preparations should not result in the emergence of resistant Salmonella by selection in the same manner that Smith and Crabb have shown resistant *E. coli* to develop. It is easy to appreciate how meat, which is perfectly healthy, may become infected in these circumstances during the dressing of carcases in the slaughter-houses. The fact that carcases of animals and birds infected either during life or subsequently may not give macroscopic evidence of their presence is sufficiently alarming. It is even more disquieting to think that we may unwittingly be responsible for the increased incidence of food poisoning by supplementing the diet of our food animals with antibiotics.

The direct and repeated contact of individuals who mix and handle supplemented food, in the factories or on farms, has not to my knowledge produced any real problem cases; and it may be observed that at the common levels of feeding now practised, the quantity of antibiotic left in the carcase for human consumption will be very small. But the query remains yet unanswered.

News and Comment

DEVELOPMENTS IN RESEARCH

Thanks to arrangements which were made originally by Dr. E. L. Taylor at the request of the Technical Development Committee, we have been able, for some time past, to publish each fortnight a short review article under the title "In Brief," covering the more recent advances in particular fields of work. All the authors who agreed to contribute to this feature originally have now done so, and the series has been so well received by our readers that it is intended to continue.

In the nebulous beginning of this project the Technical Development Committee had hopes of gradual growth into a definite shape rather than of forcing the embryo to conform to a preconceived idea, and through keeping an open mind they have come to appreciate the value of personal views on research advances. During the course of his studies in any branch of veterinary science the specialist gradually defines his own particular field of interest, and no two of these fields are precisely the same. Given titles of subjects which are not too narrowly restricted, therefore, it would be possible for two or three specialists to produce digests of recent advances, running to some 300 words, that would differ from one another, not only in their emphasis, but in the actual matter that had been extracted from the literature, as also in the application of the scientific findings to clinical work.

It is hoped that by following this new line the short column headed "In Brief" may ultimately take on a touch of individuality that will make the contributions just a little different from what is seen in other veterinary periodicals, and add to the character of THE VETERINARY RECORD.

STERILISATION OF FARM DAIRY UTENSILS

The Ministry of Agriculture, Fisheries and Food wishes it to be understood that the only chemicals so far officially approved for the sterilisation of farm dairy utensils are certain-named brands of sodium hypochlorite solution. Other materials, including some quarternary ammonium compounds, are under examination, and when any of these are approved for use, a further announcement will be made by the Department.

THE SOUTH-EASTERN VETERINARY ASSOCIATION

An informal dinner was held by the Association at the Royal Star Hotel, Maidstone, on April 30th, 1957, when a total of 40 members and their ladies assembled. The members were honoured by the presence of Mr. E. R. Callender, O.B.E., President of the B.V.A.

The toast of the South-eastern Veterinary Association was proposed by Mr. Callender, who congratulated the members on the success of their society, and thanked them for the pleasant time he was enjoying. It was replied to by Captain F. C. Gillard, M.C., President.

The toast to the ladies was proposed by Mr. A. M. Taylor, the immediate Past President, and responded to by Miss Gillard.

IMPORTANT NOTICE

Congress Papers

In view of the heavy cost of printing Congress papers for advance circulation to members of the Association, it has been decided to introduce a measure of economy. **Papers will not be circulated automatically this year.** They will, as usual, be printed in full, together with discussions, in a special number of THE VETERINARY RECORD to be issued as soon as is practicable after Congress. Members of the Association who wish to receive advance copies are asked to apply for them on the ticket reservation form which will be published shortly in THE VETERINARY RECORD.

R.C.V.S. COUNCIL ELECTION, 1957

Members who have not yet cast their votes in the Council Election are reminded that voting papers should be posted to reach the Registrar, R.C.V.S., 9, Red Lion Square, London, W.C.1, on or before the closing date, Monday, May 20th, 1957.

MR. ROBERT CROUCH

Readers will have heard with regret of the death, at the early age of 53, of Mr. Robert Crouch, M.P. A practical farmer, from an old Dorset farming family, Mr. Crouch had close contacts with the profession, especially since his election as Member for North Dorset in 1950. He was a member of the committee of enquiry who studied conditions of slaughter-house management and meat inspection in Western Europe, and who reported officially to the British Veterinary Association. He was a strong advocate of the widest use being made of veterinary knowledge and skill, and he spoke forcibly against the continuance of the licensing system when Parliament recently rejected the second reading of the P.D.S.A. Bill.

He was well known to many members of the profession, and his bluff, forthright character and fearless advocacy of what he believed to be right—the name of Crichel Down will always be associated with him—will be greatly missed in Parliamentary, farming, and veterinary circles.

SIR THOMAS DALLING RETIRES FROM F.A.O.

Sir Thomas Dalling retired on April 24th from his post as senior veterinarian with the Food and Agriculture Organisation of the United Nations.

During his 43 years as a veterinarian, Sir Thomas has reached the top of three distinct branches in his profession. He graduated at the Royal (Dick) School of Veterinary Studies of Edinburgh in 1914, distinguished himself in World War I, and then devoted

himself to research, becoming the leading authority on certain diseases of sheep and making outstanding contributions in this field. He then turned to teaching, and became Professor of Animal Pathology at Cambridge University, 1037-42. Finally, Dr. Dalling (as he then was) joined the Ministry of Agriculture and was Chief Veterinary Officer from 1948 to 1952. In that year, he retired to join the Food and Agriculture Organisation of the United Nations, making in the next five years contributions to the control, especially at international level, of many of the world's most costly animal diseases.

Photo by C. J. Price, M.R.C.V.S.

Mr. J. B. Randall, Director of Veterinary Services, Sir Thomas Dalling, Mr. L. S. Pfob, and Dr. D. H. L. Rollinson.

In an interview, Sir Thomas picked out the work in rinderpest control as the most important achievement in this field during his period with F.A.O. This disease, for long accepted as the greatest killer of live-stock over wide areas of the world's surface, has now been virtually stamped out in a number of countries, and reduced to comparative insignificance in many others.

In Europe, Sir Thomas was largely responsible for the European Foot-and-Mouth Commission which, working alongside the International Office of Epizootics, has done much in recent years to attain a measure of co-operation and agreement in combating this disease, still the most dangerous in many parts of the world.

It is stated that Sir Thomas has decided to devote himself to veterinary education, for which there is a great need in the underdeveloped countries. In this, Sir Thomas will still be working for F.A.O. as a special consultant, and he has already planned two trips, one to Central America, and one, later in the year, to the Middle East.

During a trip earlier this year, Sir Thomas visited the Animal Health Research Centre, Entebbe, Makerere College Veterinary School, and had talks with the Director of Veterinary Services and Animal Industry, Mr. J. B. Randall. On the eve of his departure, Sir Thomas Dalling was entertained at a Sundowner given in his honour by the Uganda Branch of the B.V.A.

RETIREMENT OF DR. A. D. McEWEN, O.B.E., M.R.C.V.S., F.R.S.E.

The retirement of Dr. A. D. McEwen, head of the Department of Microbiology of the Animal Diseases Research Association, took place on April 24th, the occasion being marked by an informal gathering of the staff of Moredun Institute to offer their good wishes to him and Mrs. McEwen. It seems fitting, therefore, to publish an appreciation of one of the most eminent veterinary bacteriologists in this country, who has made many brilliant contributions towards elucidating the causation, control, and prevention of animal disease.

Dr. McEwen's earliest work was concerned with the anaerobic bacteria pathogenic to sheep, of major importance being his discovery that the condition known as "struck" in Romney Marsh sheep in Kent was an enterotoxaemic disease caused by an organism of the *Clostridium welchii* group. This work was carried out while he was Veterinary Investigation Officer at Wye Agricultural College, a post which he held from 1929 until 1942. Blackquarter, black disease, and gas gangrene in sheep were other anaerobic infections which he investigated, and in the last named he demonstrated the significance of *Clostridium chauvoei* as the causal organism and developed a practical means of control by passive immunisation.

In 1934 he was awarded the degree of Doctor of Science at Edinburgh University for a thesis on the anaerobic diseases of sheep.

In the following year he published a paper on the use of copper sulphate and nicotine in the control of parasitic gastro-enteritis in sheep and cattle. This played an important part in the reduction of losses from this condition, one of great economic importance to farmers.

It was at this time that Dr. McEwen became interested in the problem of contagious abortion in cattle caused by *Brucella abortus*, and for several years he carried out extensive infection and immunisation experiments in the laboratory and in the field which culminated in the use of the agglutination test for diagnosis of the disease and in the development of the now well-known Strain 45/20 vaccine. This was a living vaccine, but one of greatly reduced virulence, which produced a high level of resistance to infection when inoculated into non-pregnant animals. Strain 45/20 was a rough strain and therefore had the added advantage that its inoculation into animals produced no reaction to the agglutination test, a most important factor in any disease eradication programme where such a test is used.

In 1942, Dr. McEwen was appointed Chief Bacteriologist to the Animal Diseases Research Association at Moredun Institute, Edinburgh, a post which he held until his retirement. Three years later, in 1945, the National Veterinary Medical Association showed the esteem in which his work was held by the veterinary profession by presenting to him the Dalrymple-Champneys Cup, awarded annually to the member

of the Association who has given the most meritorious service during the preceding 10 years.

More recently, one of Dr. McEwen's most important contributions to the knowledge and control of sheep disease has been in connexion with enzootic abortion of ewes or "kebbing," for he was one of the group who first identified the causal virus and subsequently developed an effective vaccine against this infection. As a result of this work the incidence of virus abortion, once looked upon as an inevitable annual scourge in the sheep flocks of South East Scotland, has been reduced to almost negligible proportions.

In 1951, public recognition of his outstanding achievements in the field of veterinary bacteriology was provided by the conferment on him of the Order of the British Empire, an honour richly deserved and welcomed by all his fellow-members in the profession.

As a continuation of his earlier studies on bovine contagious abortion, Dr. McEwen's most recent work has provided valuable evidence that a killed vaccine prepared from Strain 45/20 contains heat-stable protective antigen whose antigenic properties are enhanced by combination with an adjuvant, and which is non-agglutinogenic. This finding may prove to be of very considerable importance in eradicating *Brucella abortus* infection from dairy herds.

Dr. McEwen was one of the signatories of the 1925 Memorandum and Articles of the National Veterinary Medical Association, and he has given valuable service as a member of many committees both of the British Veterinary Association and of other organisations. He was recently elected an honorary life member of the Scottish Metropolitan Division of the B.V.A., and at a recent meeting the Council of the B.V.A. recommended to the next Annual General Meeting that he be elected an honorary life member of the Association.

He received from the staff of Moredun Institute the present of an electric home-workshop outfit, and Mrs. McEwen was presented with a bouquet of flowers. The nature of Dr. McEwen's present makes it clear that he is to be no less active in his retirement than he has been throughout his professional career. He intends to devote much of his time to his favourite hobby of gardening at his country cottage in summer, and at his home in Edinburgh during the winter.

His many friends in the profession will wish both him and Mrs. McEwen much pleasure in the years to come.

PERSONAL

Births

CORNWELL.—On April 30th, 1957, to Dorothy, wife of Rendle L. Cornwell, B.V.SC., M.R.C.V.S., of Amery Farm, Alton, Hants, a daughter, Bryony Jane, sister for Nigel.

STRANG.—On April 29th, 1957, to Anne (*née* Walker), wife of Robert Strang, M.R.C.V.S., at 47, York Gardens, Braintree, Essex, a daughter, Susan Elizabeth.

Mr. G. N. Gould, J.P., was presented with the Victory Medal of the Central Veterinary Society at the Society's Annual General Meeting on May 2nd. This gold medal is presented annually at the discretion of the Society's Council to a member of the profession who has rendered outstanding service to the cause of veterinary science in this country.

Professor George Wooldridge was unanimously elected an Honorary Fellow of the Central Veterinary Society at the Society's Annual General Meeting, held on May 2nd. This honour is one that is comparatively rarely bestowed.

COMING EVENTS

May

15th (Wed.). Annual General Meeting of the A.V.T. & R.W.s Scottish Regional Group at the Hannah Dairy Research Institute, 10.50 a.m.

Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

Spring Meeting of the Eastern Counties Veterinary Society at the Field Station of the Equine Research Station, Lanwades Park, Kennett, Nr. Newmarket, 6.30 p.m.

Annual General Meeting of the South-east Midlands Veterinary Medical Association at Franklin's Gardens Hotel, Northampton, 7.30 p.m.

17th (Fri.). Meeting of the R.A.V.C. Division at the National Institute for Research in Dairying, Shinfield, Reading, 11 a.m.

18th (Sat.). Annual Dinner of the R.V.C. '52 Club at Ye Miller of Mansfield, Goring.

Annual Sports Day of the Students Union Society, R.V.C., at Goring-on-Thames.

22nd (Wed.). Annual General Meeting of the Sussex Veterinary Society at the Old Ship Hotel, Brighton, 2.30 p.m.

23rd (Thurs.). Ordinary General Meeting of the South-eastern Veterinary Association at the Royal Star Hotel, Maidstone, 6.30 p.m.

24th (Fri.). 165th Annual Ball of the Royal Veterinary College Students' Union Society at the Royal Veterinary College, Camden Town, N.W.1, 9 p.m.

Ordinary General Meeting of the Royal Counties Veterinary Association at the Grosvenor House Hotel, Kidmore Road, Caversham, Reading, 2.30 p.m.

29th (Wed.). Annual General Meeting of the Supplementary Veterinary Register Division at 7, Mansfield Street, London, W.1, 2 p.m.
Meeting of the Lincolnshire and District Division at the Saracen's Head Hotel, Lincoln, 2.15 p.m.

June

5th (Wed.). Royal Veterinary College Association annual dinner at R.V.C., 6.30 for 7 p.m.

11th (Wed.). Annual Meeting of the R.A.V.C. Golfing Society at the North Hants Golf Club, Fleet, 10 a.m.

12th (Wed.). Annual General Meeting of the Midland Counties Veterinary Association at the Birmingham Medical Institute.

13th (Thurs.). Annual Dinner of the R.A.V.C. Officers' Club at the Grosvenor House, Park Lane, London, W.1.

14th (Fri.). Annual Dinner of the Chiron Club at the Royal Hotel, Bristol, 7 p.m.

August

25th-31st. 75th Annual General Meeting and Congress of the B.V.A. at Cambridge.

BRITISH VETERINARY ASSOCIATION QUARTERLY MEETINGS IN LONDON

Wednesday, July 10th, at 7, Mansfield Street, London, W.1.

10.00 a.m. Veterinary State Medicine Committee.
11.30 a.m. Farm Live-stock Committee.
2.15 p.m. Home Appointments Committee.

Thursday, July 11th, at 7, Mansfield Street, London, W.1.

10.00 a.m. Parliamentary and Public Relations Committee.
11.30 a.m. Small-animals Committee.
12.00 noon Finance Sub-committee.
2.15 p.m. General Purposes and Finance Committee.

Friday, July 12th, at Connaught Rooms, London, W.C.2.

10.30 a.m. Council Meeting.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Ayr. West Heads, Newmilns (Apr. 26).

Herts. Parsonage Farm, Sawbridgeworth (Apr. 26); Westmillbury Farm, Westmill, Buntingford (Apr. 26).

Kirkcudbright. Airdrie Farm, Kirkbean (Apr. 26).

Stirling. Lower Ballaird Farm, Balfron Station, Glasgow (May 1).

Wigtown. Barnhills Farm, Kirkcolm, Stranraer (May 2).

Yorks. Woolley Moor Farm, Woolley, Wakefield (Apr. 29).

Fowl Pest

Cambs. College Farm, Pampisford (Apr. 30).

Herts. Rear of The Haven, Scatterdells Lane, Chipperfield, Kings Langley (Apr. 30).

Lancs. Homestead, Liverpool Road, Tarleton; Beconsall Hall Farm, Hesketh Bank; Evenham House, Newton, Kirkham; Liverpool Road, Bretherton (Apr. 26); Lakeside Farm, New Hall Avenue, Marton, Blackpool (Apr. 27); Marygarth, Coe Lane, Tarleton, Preston; Mill Brow, Liverpool Road, Bretherton; Grimbaldeston Farm, Cow Hill, Grimsargh; The Pines, Gill Lane, Longton; Highfield, Coe Lane, Tarleton, Preston (May 2).

London. 107, Bethnal Green Road, London, E.2 (May 2).

Sussex. Fishers Farm, Wisborough Green, Billinghurst (Apr. 29).

Swine Fever

Berks. Piggeries, Pinewood Avenue, Crowthorne (Apr. 30); Cherry Cottage, Whitchurch Hill, Reading (May 6).

Durham. Tile Shed Piggeries, Tile Shed Lane, East Bolden (May 2).

Hants. Bisterne House, Bisterne, Ringwood; Old Forge Farm, Conford, Liphook (May 1).

Kent. Tile Barn Land Buildings, Smarden, Ashford (May 3).

Leics. Birstall Lodge Farm, Thurcaston Road, Leicester; Piggeries, Battleacre Lane, Loughborough (May 6).

Oxford. Eastwyke Farm, Abingdon Road, Oxford (May 1).

Somerset. Borden Cottage, North Brewham, Bruton (Apr. 30); Elm Farm, Wraxall, Bristol (May 2).

Suffolk. Manor Farm, Thurston, Bury St. Edmunds (Apr. 30).

Surrey. Durfold Hall Farm, Dunsfold, Godalming (May 2).

Warwicks. Brickhill Cottage, Coleshill Heath Road, Coleshill; Sandle House Farm, Lowsonford, Birmingham (May 6).

Yorks. Old Hall Farm, Higham, Barnsley (Apr. 30); Pit House Farm, Waleswood, Sheffield; Shutt Lane Piggery, Greetland, Halifax (May 6).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Correction of the Displaced Abomasum

Sir,—Since the clinical report presented by Mr. Hugh Begg in THE VETERINARY RECORD on February 18th, 1956, the emphasis in veterinary literature has been on surgical correction in spite of the fact that he reported considerable success from manipulation of the abdomen of the cow recumbent on her back.

We realise this is a preliminary report of two cases only but we have written this letter in the hope that other veterinary surgeons have tried or will try the methods described or variations of them and report their results.

Case 1. This cow had had a displaced abomasum corrected surgically three weeks previously: this was followed by complete return to appetite and production. When seen the second time she had relapsed and had shown typical symptoms of displacement of abomasum for three days. We then decided to try manipulation and rocking. The cow was quite empty—appetite having ceased completely and intake of water markedly reduced for three days.

The cow was cast by Reuff's method, left side uppermost, her hind legs secured by webbing. She was slowly raised on to her back by lifting the fore

and hind legs. Attempts were then made to manipulate the abomasum back into position. She was then lowered—her right side uppermost. She was allowed to rise and freed but showed no interest in the long grass offered her.

She was cast again as before and raised on to her back. Using her fore legs as a lever she was rocked to and fro several times over an arc up to 45° from the vertical both ways. Her abdominal wall was manipulated again for good measure. There was a gurgle of gas which we concluded must have been gas escaping from the abomasum. She was rocked two or three times more and then laid down, right side uppermost. Next she was allowed to rise and freed into the long grass. This time she ate the grass avidly. So far she has not relapsed and her daily milk yield has increased by 2 gallons. Her appetite for concentrates and hay is now normal.

Case 2. This cow had a typical history—having calved eight weeks previously. Her appetite for food and water had been very small; she had lost a great deal of condition, her milk yield was negligible, and she was empty. There was no evidence of ketosis. It was only at this stage that the farmer called us in.

Following our previous experience we decided to repeat the procedure we had used in Case 1. On this occasion no gurgling sound was heard. We let her rise—and hoped! She started to feed on grass and has continued to eat all types of food well, and has markedly improved in milk yield.

This method, of course, will not succeed where adhesions are present, but in our experience these have been observed only twice in 12 cases. It may not always work, but it is worth trying before operation. If the condition recurs an operation and fixation may be indicated. When the method does work, the recurrence of appetite is so spectacular it leaves the farmer wondering whether it is some giant hoax or not, and usually calls for some ribald comment!

Yours faithfully,

A. C. GOULD,
C. M. GOULD.

10/12, Landguard Road,
Southampton.

April 30th, 1957.

Bovine Obstetrics

Sir,—May I express my sincere thanks to all your correspondents? Such a controversy must surely benefit our profession.

My observations were merely a practical statement of facts—simple facts. Perhaps the simplicity of it all worries the cynics most, though I have always found in veterinary work that the simple things are the most important, particularly in clinical diagnosis.

Mr. Walsby keeps calling for evidence. Does he not accept truth as evidence? At any rate the evidence provided by Dr. F. W. Withers in his article on " Disease Incidence in Dairy Herds " must surely convince Mr. Walsby that the mortality associated with parturition is far in excess of mortality due to summer mastitis.

Mr. E. P. Barrett's letter sums up my own feeling precisely and the subacute hypocalcaemic case which he portrays is very important: I have encountered several and have treated them, in the same way as Mr. Barrett, with simple calcium therapy and no manual assistance.

Mr. J. F. D. Tutt's constructive criticism is extremely valuable. The key to each individual obstetrical case is knowing when to leave alone and when to interfere, and of course that knowledge can only be gained by experience. As I have previously stated, my guiding principle is the progress made, and obviously progress may cease after varying degrees of decomposition.

Mr. Fraser's suggestion is an excellent one, and Mr. Johnstone's experience with Dienoestrol is extremely interesting.

As the sheep men will probably have guessed, by the comparatively long time it took me to find 28 cases of so-called ring womb, this is not by any means an intensive sheep area, but I sincerely hope that practitioners like Mr. Edwards and Mr. Jones with large sheep practices will try my therapy. In that case I shall be greatly surprised if their number of caesarean sections does not dwindle to an occasional few. It may be that my ring womb findings, based on much fewer cases than my bovine obstetrical findings, were due to an incredible run of luck, but surely there is sufficient evidence there to show that at least a high percentage of so-called ring womb cases are created by our own premature interference due to lack of knowledge of Nature's processes? Mr. Cameron Gibson's excellent constructive criticism would seem to support this view since he has found that ewes operated on for ring womb will subsequently lamb normally for the most part.

Once again may I thank all your correspondents, even the " jargon " critics, and I hope the discussion may continue.

Yours faithfully,

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132, Lichfield Road,
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May 6th, 1957.

Obstetrics

Sir,—The figures for lambing cases given in Messrs. Edwards and Jones's interesting letter show what an extra busy time the practitioner may experience in a sheep area during the first three or four months of each year. It is therefore to our practical and professional advantage to discuss which type of case can, and cannot, be allowed more time. On the one hand one does not wish to embark on unnecessary and time-consuming procedures such as caesarean section for a prolapse of the vagina and cervix diagnosed mistakenly for ring womb, whilst on the other hand one does not wish to court complications by undue delay in operating on the true ring womb case.

While not suggesting that any of the cases operated on by the authors were not cases of ring womb—one can only make the diagnosis by examining the exact state of the cervix, sometimes, together with the foetal membranes and/or the udder—I do think it should be made clear that in the pregnant ewe